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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,158

06/14/2005

Robert H Detig

2349-104US//29,129-A-USA

2554

20802 7590 05/17/2007  
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EXAMINER

LEE, BENJAMIN C

ART UNIT

PAPER NUMBER

2612

MAIL DATE

DELIVERY MODE

05/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/539,158

Applicant(s)

DETIG ET AL.

Examiner

Benjamin C. Lee

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2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-21 is/are pending in the application.
- 4a) Of the above claim(s) 13-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-12 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

***Response To Amendment***

***Claims Status***

1. Claims 1-5 and 7-12 are currently pending for examination.

***Claim Rejections - 35 USC § 103***

2. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabau et al. (US 6,147,662) in view of Eberlein et al. (US pat. #6,524,758).

1) Regarding claim 1, Grabau et al. discloses: An RFID device comprising: a substrate; an antenna means on said substrate, said antenna means comprising a metal toner formed in a pattern on said substrate comprising at least one loop; at least one chip; and a connection means for electrically connecting said antenna means and said chip (col. 1, lines 54-67 and Fig. 3), except: specifying that the chip is the claimed a silicone chip and the metal toner is a sintered metal toner.

However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the "radio frequency identification chip" in Grabau et al. is an IC that can be implemented in the form of a silicon chip as conventionally done in the art. Furthermore, it is well known that toner printing such as in Grabau et al. involves sintering in order for the metal toner material to form a continuous solid trace, as in the case of the antenna of Grabau et al. Eberlein et al. demonstrates such known sintering of conductive toner (col. 6, lines 27-34). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the metal toner printing to form the antenna on the substrate in Grabau et al. comprised of a sintered metal toner formed in a pattern on the substrate, as further supported by Eberlein et al.

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2) Claim 12 (depends on claim 1): further comprising a protective coating (col. 1, lines 65-67).

3. Claims 2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabau et al. in view of Eberlein et al. and Chung (US 6,404,643).

1) Regarding Claim 2, Grabau et al. and Eberlein et al. render obvious all the claimed subject matter as in claim 1, except the claimed wherein said connection means is comprised of an electrically conductive adhesive.

While Grabau et al. discloses providing a connection/contact between the antenna and the silicon chip, Chung further teaches that such connection can be done using electrically conductive adhesive (Fig. 15; col. 12, lines 51-63; col. 14, lines 20-35; col. 5, line 66 t col. 6, line 7).

In view of the teachings by Grabau et al., Eberlein et al. and Chung, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use electrically conductive adhesive as taught by Chung to form the connection between the chip and the antenna in Grabau et al. and Eberlein et al. as a known, fast and convenient way for establishing the intended electrical connection.

2) Claims 8-9 (depends on claim 1): Eberlein et al. shows that sintering is done at the substrate, which would be after the conductive toner has first been placed on the substrate, and Grabau et al. shows wherein said antenna means is printed on said substrate using conductive ink/toner (col. 1, lines 58-59).

While Grabau et al. discloses conductive ink printing without specifying electrostatic or inkjet printing (col. 1, line 59), Chung specifically teaches the known use of inkjet print of

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conductive elements including the antenna in an RFID device (col. 12, lines 51-63; col. 14, lines 20-35 and col; 5, line 66 to col. 6, line 7).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that such printing could be any of known printing techniques including liquid toner printing using electrostatic or inkjet printing methods, such as by known inkjet printing of Chung as a specific type of printing in Grabau et al. and Eberlein et al.

4. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabau et al. in view of Eberlein et al. and Takasugi et al. (US 6,837,438).

1) Regarding Claim 3, Grabau et al. and Eberlein et al. render obvious all the claimed subject matter as in claim 1, except the claimed wherein said connection means is a first coil means connected to said antenna means and a second coil means connected to said silicon chip; wherein said first coil means and said second coil means are proximally located thereby facilitating electrical communication.

In the same art of RFID construction, Takasugi et al. teaches an electromagnetic connection as claimed as an alternative to the electrical connection for electrical communication between the antenna and the chip (Figs. 18 in which "34" is the second coil, "29" is the first coil, and "22, 24" is the antenna) for extended communication range (Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the connection in Grabau et al. and Eberlein et al. using the first and second coils as taught by Takasugi et al. for the advantage of extended communication range so that attempted communication from an interrogator/reader with an RFID device that is located at an extended communication range can be more reliably taken place.

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2) Claim 7 (depends on claim 3): Wherein said second coil means is located on said silicon chip (on-chip coil 32A in Fig. 13 of Takasugi et al.).

5. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabau et al. in view of Eberlein et al., Takasugi et al. and de Vall (US 5,608,417).

1) Regarding Claims 4 and 6, Grabau et al., Eberlein et al. and Takasugi et al. render obvious all the claimed subject matter as in claim 3, except the claimed wherein said first coil means is comprised of at least two loops wherein each of said at least two loops is separated by a layer of dielectric.

Takasugi et al. shows that the first coil means (29 of Fig. 18) comprises multiple turns and is in circuit with a tuning capacitor (24) for the antenna coil (22), and further illustrated the similar second coil means in the form of at least 2 loops (Fig. 8).

Furthermore, the formation of a coil means comprised of at least two loops wherein each of said at least two loops is separated by a layer of dielectric to simultaneously implement an inductive element and a capacitive element (as a result of the dielectric sandwiched between top and bottom loop conductors) as been known in the art, such as taught by de Vall in the same art of RFID construction (see figures).

In view of the teachings by Grabau et al., Eberlein et al., Takasugi et al. and de Vall, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a known coil means construction of de Vall to form the first coil means in Grabau et al. and Takasugi et al. so as to simultaneously implement the inductive and capacitive elements to simplify the construction or construction steps or the need for a separate capacitor.

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6. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabau et al. in view of Eberlein et al., Takasugi et al. and Chung.

1) Regarding Claim 10, Grabau et al., Eberlein et al. and Takasugi et al. render obvious all the claimed subject matter as in claim 3, except the claimed wherein said connection means is applied to the RFID device using electrostatic or inkjet printing methods.

While Grabau et al. discloses conductive ink printing without specifying inkjet printing (col. 1, line 59), Chung specifically teaches the known use of inkjet printing of conductive elements including the antenna and connecting means (pads, contacts, etc.) in an RFID device (col. 12, lines 51-63; col. 14, lines 20-35 and col. 5, line 66 to col. 6, line 7). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that inkjet printing of Chung is a specific type of ink printing in Grabau et al., Eberlein et al. and Takasugi et al. and therefore to use such known inkjet printing in printing the connection means.

2) Regarding Claim 11, Grabau et al., Eberlein et al. and Takasugi et al. render obvious all the claimed subject matter as in claim 7, except the claimed wherein said second coil means is applied to said RFID device using electrostatic or inkjet printing methods.

While Grabau et al. discloses conductive ink printing without specifying inkjet printing (col. 1, line 59) and Takasugi et al. discloses the second coil means can be planar against the substrate (Fig. 8), Chung specifically teaches the known use of inkjet printing of conductive elements including the coil antenna and connecting means (pads, contacts, etc.) in an RFID device (col. 12, lines 51-63; col. 14, lines 20-35 and col. 5, line 66 to col. 6, line 7). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that inkjet printing of Chung is a specific type of ink printing in Grabau et al., Eberlein et al. and

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Takasugi et al. and therefore to use such known inkjet printing in printing the conductive elements including the second coil means.

*Allowable Subject matter*

7. Claim 5 is objected to as being depended on a rejected base claim, and would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims.

*Response to Arguments*

8. Applicant's arguments filed 3/8/07 have been fully considered but they are not persuasive.

The amended portions including the "sintered" feature has been met using new ground and new prior art. See above rejection for detail.

*Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (571) 272-2963.

The examiner can normally be reached on Mon -Thu 11:00Am-7:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Benjamin C. Lee  
Primary Examiner  
Art Unit 2612

B.L.